

ORACLE®

ACADEMY

Database Foundations

1-2

Introduction to Databases



Roadmap

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About the Course

Introduction to Databases

Types of Database Models



Relational Databases

Database Storage Structures

Understanding Business Requirements

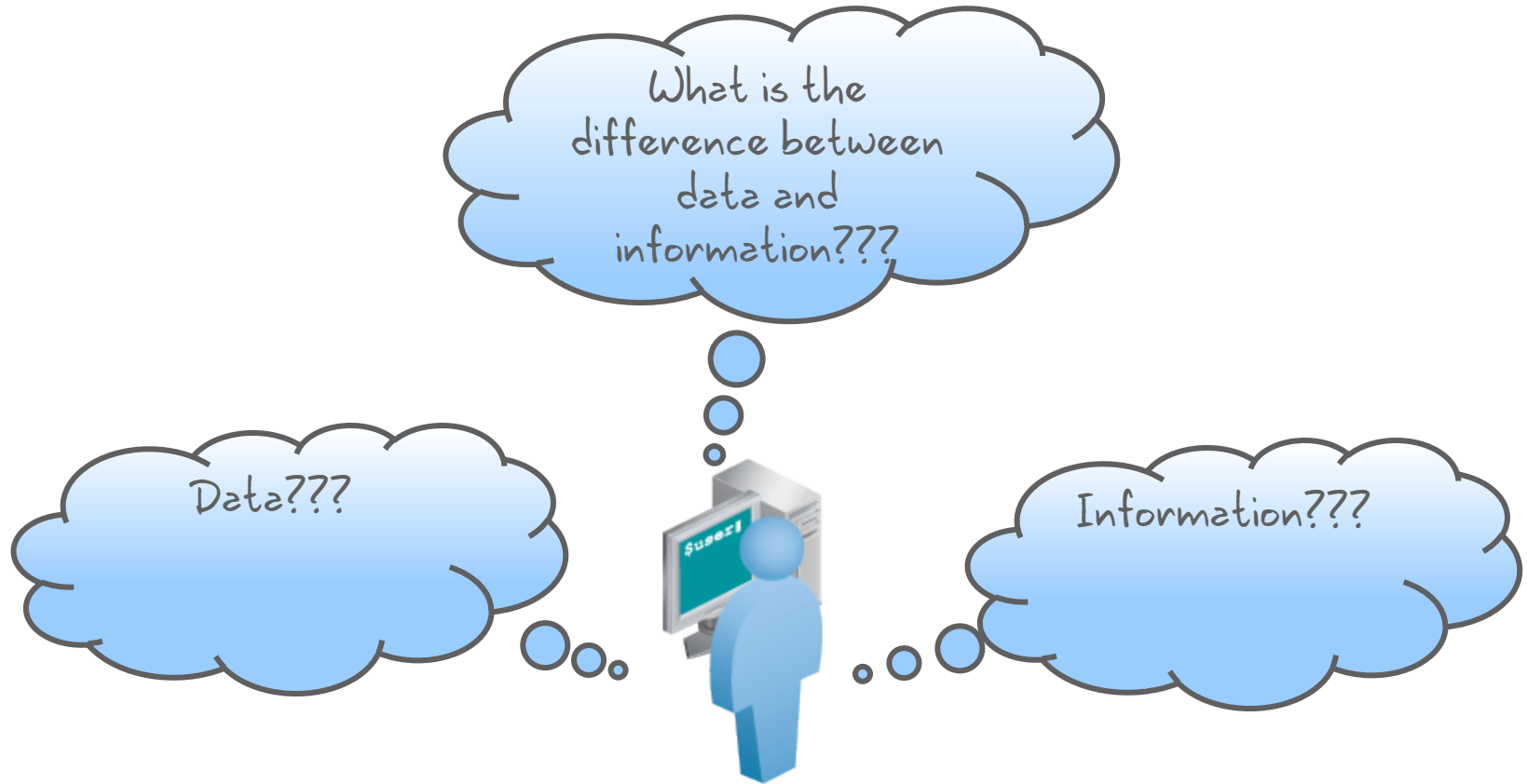
Objectives

This lesson covers the following objectives:

- Differentiate between data and information
- Define database
- Describe the elements of a database management system (DBMS)
- Identify the transformations in computing
- Identify business and industry examples where database applications are used



Case Scenario: Data Versus Information



Data Versus Information

- **Data:**

- Collected facts about a topic or item

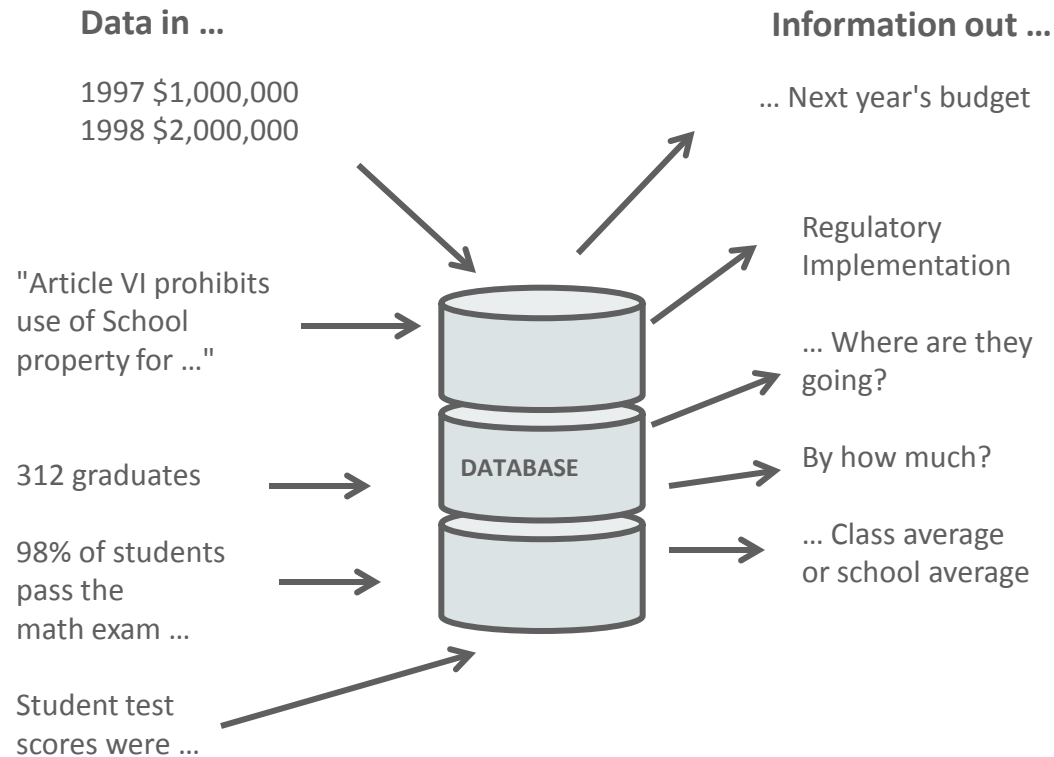


- **Information:**

- The result of combining, comparing, and performing calculations on data.



Data Versus Information: An Example



Database Definition

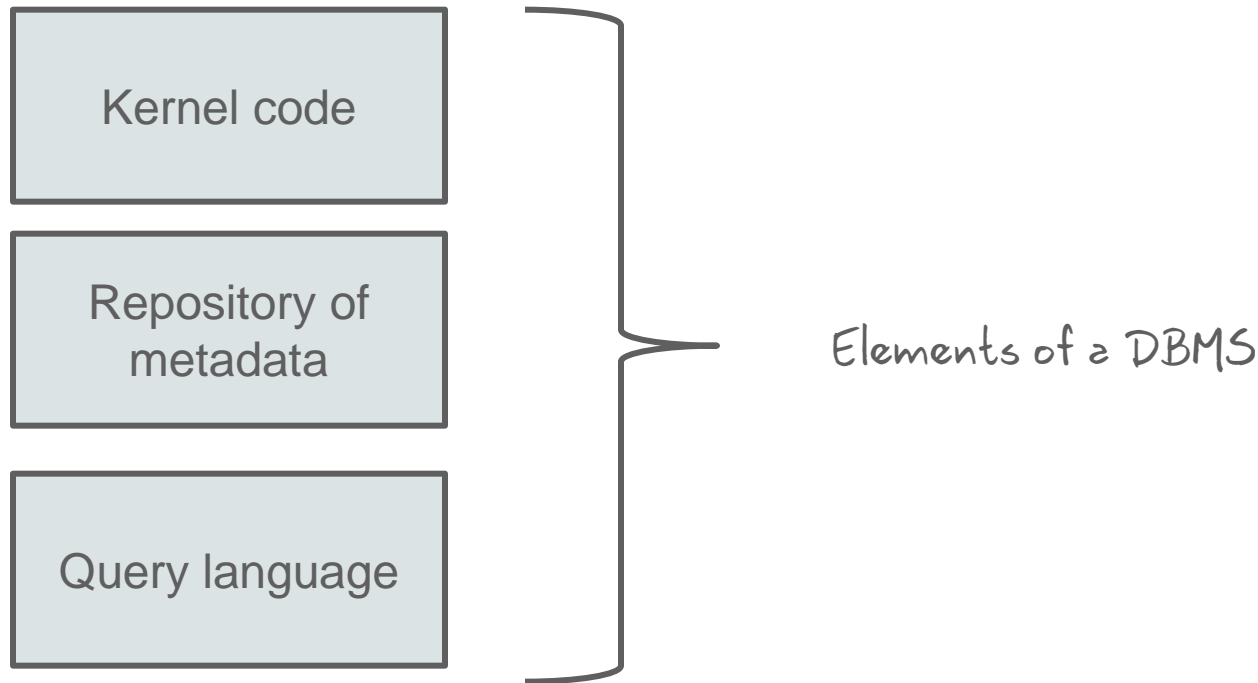
A database:

- Is a centralized and structured set of data stored on a computer system.
- Provides facilities for retrieving, adding, modifying, and deleting the data when required.
- Provides facilities for transforming retrieved data into useful information.



Database Management System

A DBMS is software that controls the storage, organization, and retrieval of data.



Key Computing Terms

In the field of computing, these are some of the key terms:

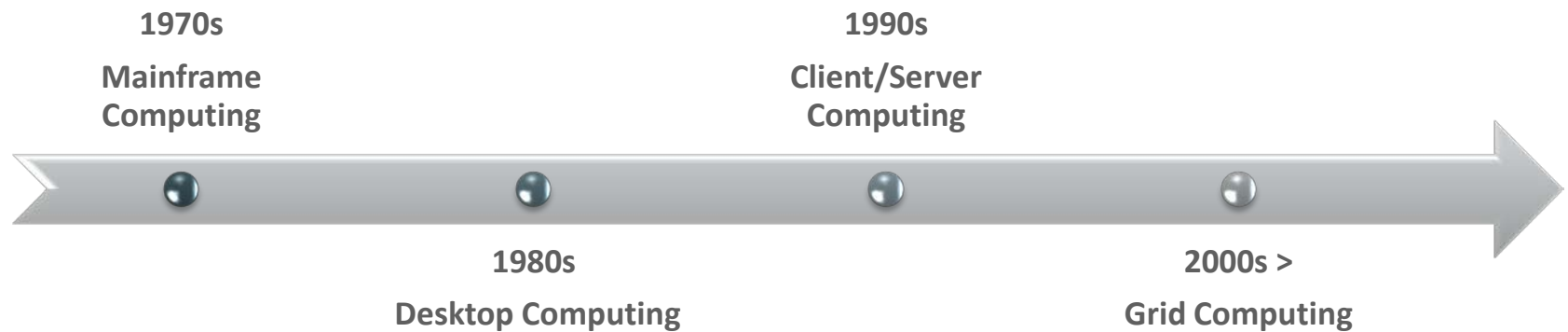
- Hardware
- Software
- Operating system
- Application
- Client
- Server

Case Scenario: Transformation in Computing

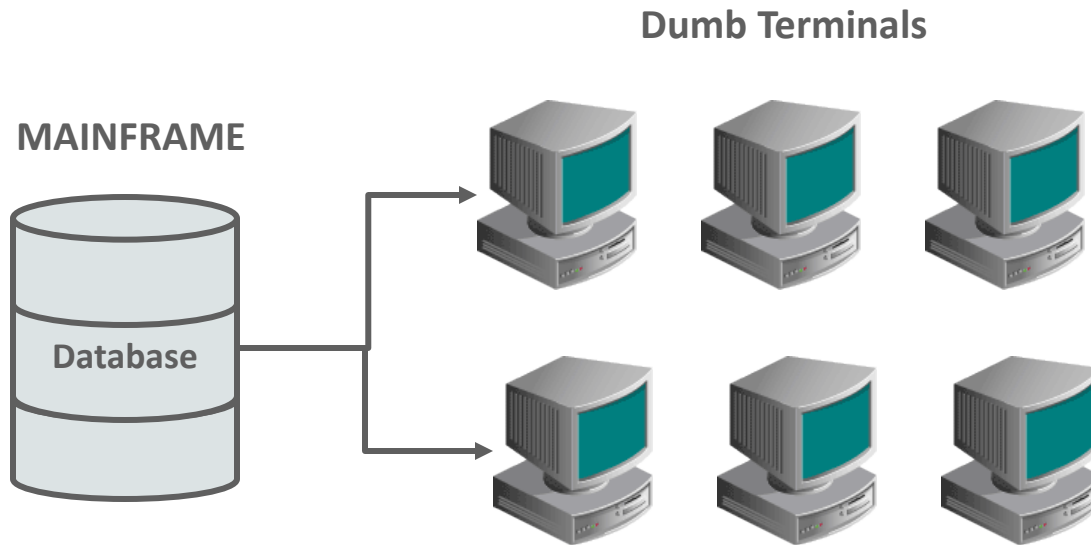
There have been so many changes in the field of computing. What were they and when did they occur?



Transformation in Computing



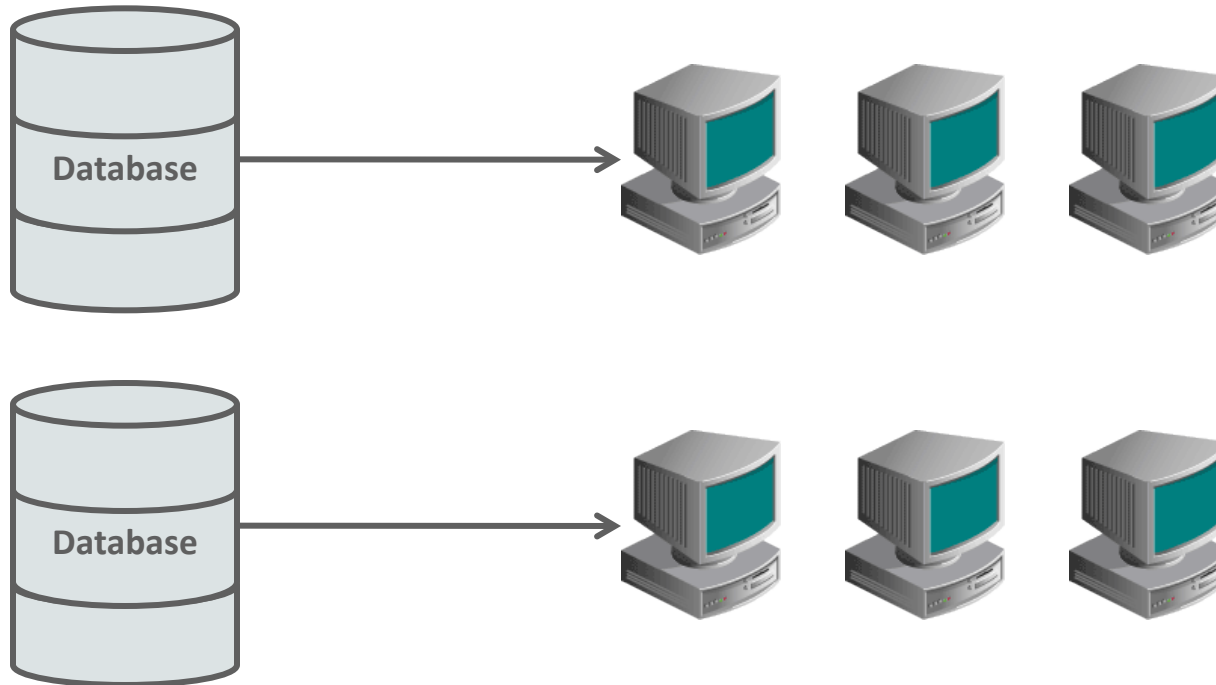
1970s: Mainframe Computing



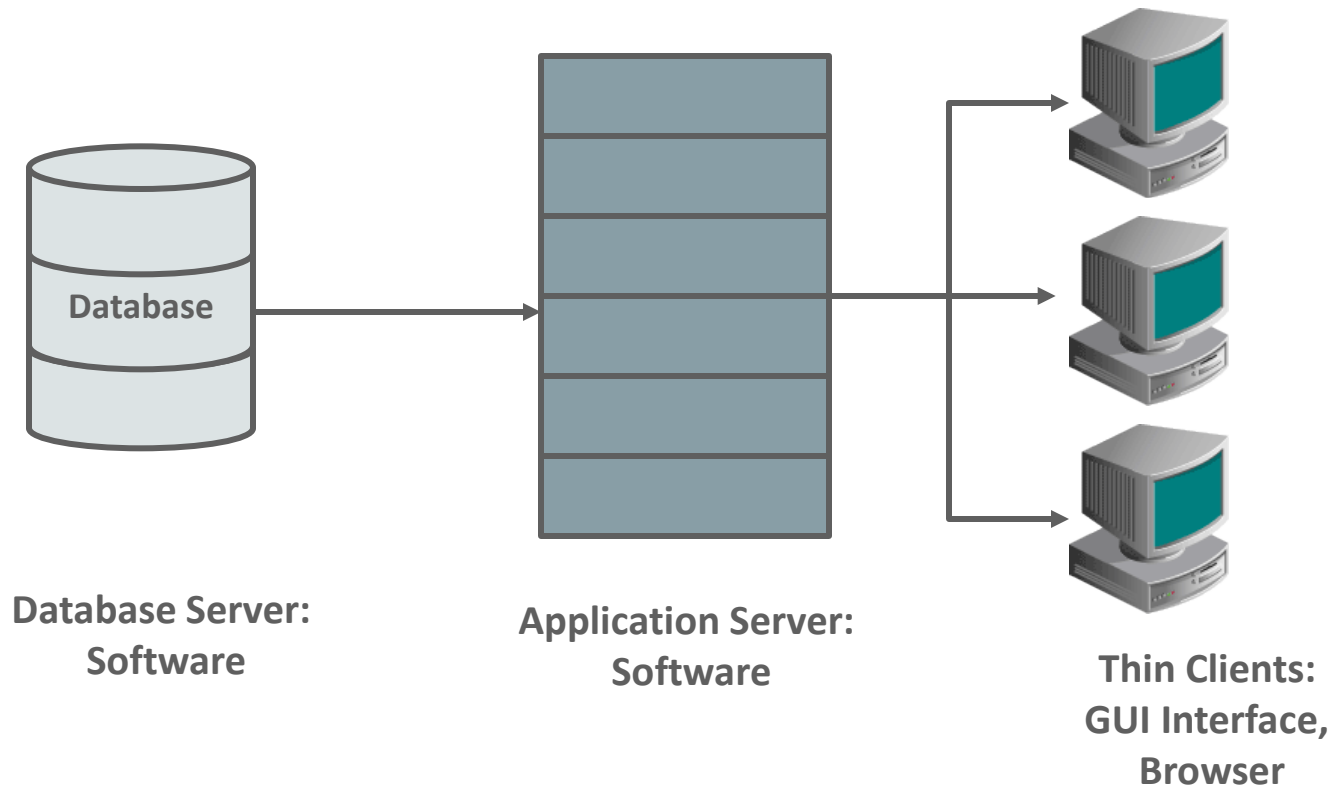
1980s: Desktop Computing

Server Computer: Software

Smart Clients: GUI Interface and Software

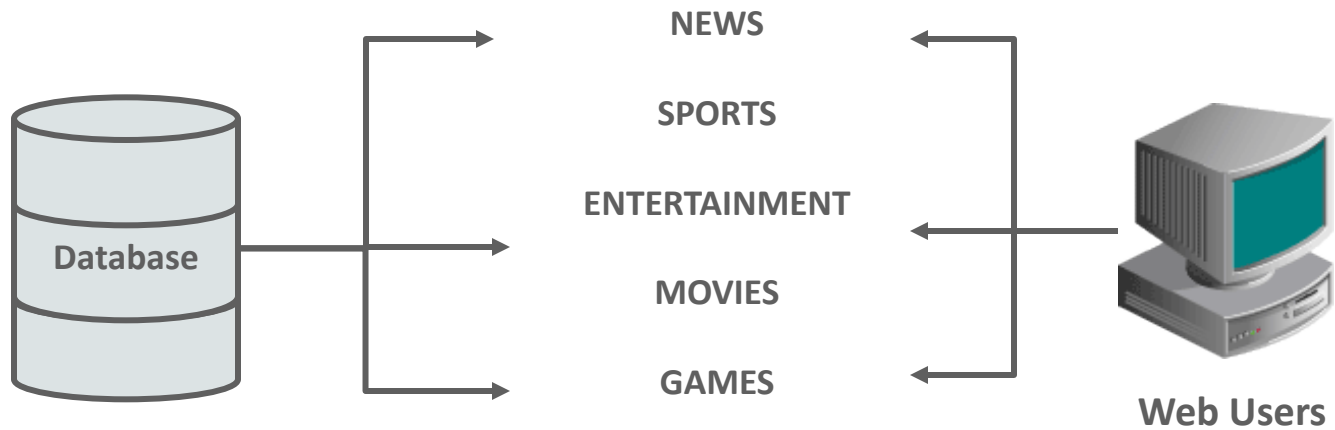


1990s: Client/Server Computing



Grid Computing

Database powers the web.



History of the Database Timeline

Year	Description
1960s	Computers become cost-effective for private companies along with increased storage capability.
1970-72	E.F. Codd proposes the relational model for databases, disconnecting the logical organization from the physical storage.
1976	P. Chen proposes the entity relationship model (ERM) for database design.
Early 1980s	The first commercially available relational database systems start to appear at the beginning of the 1980s with Oracle Version 2.
Mid-1980s	SQL (structured query language) becomes widely used.
1990s	The large investment in Internet companies helps create a tools market boom for web/internet/DB connectors.
Early 21st century	Solid growth of DB applications continues. Examples: commercial websites (yahoo.com, amazon.com), government systems (Bureau of Citizenship and Immigration Services, Bureau of the Census), art museums, hospitals, schools.

Examples



Summary

In this lesson, you should have learned how to:

- Differentiate between data and information
- Define database
- Describe the elements of a database management system (DBMS)
- Identify the transformations in computing
- Identify business and industry examples where database applications are used



